Boom Irrigation Basics

Eliminate lapses in watering by automating with boom irrigation

Boom systems can be customized for each operation. Some questions to ask yourself before installing a boom irrigation system: Where will you hang your track rails? How wide is your greenhouse? Where are your aisles?

By Kathy Lewis

Growers know that a waterer can make or break you. Before every season, sales are analyzed, forecasts plotted, supplies ordered, facilities inspected and prepared, shipping tactics examined and sometimes rehearsed — everything is planned with hindsight and foresight that would do a commanding general confronting the next battle proud. But in the end, after all the effort of planning, when all the crops are on the bench, the crop performance for your season lies in the hands of the person holding the water hose.

A grower once said to me that "a waterer is born, not made." He felt that good waterers instantly grasp the nuances of effectively irrigating crops, and if they don't quickly understand it, they rarely grow into it. If you are lucky, you have waterers who instinctively know when and how to water depending upon the day's weather and do this seven days a week, 52 days a year, year after year. But given the number of waterers required, and the typical turnover, having luck in hiring a good waterer is only temporary. Automating with boom irrigation is a way to eliminate the unpredictable variability of watering, and the devastating impact it can have on crops.

To have the most effective water spray pattern, the spray bar should travel about 2 feet above crops.

Structure First

Boom irrigation to an extent is customized for each customer. First, focus on your greenhouse structure. Where are you going to hang your track rails? Booms will run in small hoop houses and up to tall Venlo structures with high trusses. But to have the most effective water spray pattern, the spray bar should travel about 24 inches above your crops. The track rails should at least be 7 feet above the ground so people can walk under them easily. How wide is your house? The longer the length of the spray bar the more potential sway the boom could generate. A shorter hoop house could easily accommodate a single track rail because the height combined with width would generate little swaying action. But a taller, wider house would require dual track rails to compensate for any unwanted movement.

Where are your aisles? If they are to one or the other side, a continuous spray bar from end to end would cover your crops without blocking the aisle when traveling. A single track rail and a continuous spray bar is the most economical way to go if the spray bar length is under 30 feet. Anything over 30 feet would be more stable with dual track rails. If your aisle is in the center of your house, a walk-through spray bar will allow your workers and any equipment to work uninterrupted as the boom travels.

This spray bar extends from either side of the aisle to water both crop areas. It always requires dual track rails for stability. The walk-through can be a minimum of 30 inches wide but wider if needed.

Crop Control

Consider the crops you will be growing. If growing consistently in the same size configuration throughout the house, a simple control system which allows you to set the times to water, the speed the boom travels (to set optimum saturation), the number of passes or the number of "cycles" would be all that is necessary to do the job. At the beginning of every growing season, plants are usually laid out neatly and regularly according to the size or species. But two weeks into shipping and the moment a block of space opens up, something newly planted gets laid into that space. Within a couple of weeks, the greenhouse begins to look like a patchwork quilt with young plants next to older and, to complicate things further, tray packs neighboring 1 gallons on one side with 4-inch pots on the other. Programmable control systems allow you to set the speed to fast through the tray packs, slow through the 1 gallons and medium speed through the 4-inch pots based upon the distances they are from the home base of the boom. Flexibility requires more programmability.

Because plants are sensitive to changes in watering, automating with boom irrigation is one of the best ways to improve crop quality.

Beyond Irrigation

Booms can do more than automate irrigation. Clipping old polyfilm sheets to the spray bar of the boom and running them on a daily basis across the tops of plants can create a tighter and more compact plant. Research conducted by nurseries and the University at Copenhagen and Aarhus have discovered that mechanical growth retardants such as this have eliminated 30-40 percent of applied chemical growth retardants. New results indicate that chemical growth retardants could be dispensed with, if the right methods and strategies are used.

To produce consistently high-quality plants, growers eliminate sources of unpredictability in their operation. Given the sensitivity of plants to changes in their watering regimen, and the high variance of manual watering, automating crop watering with boom irrigation is among the best ways to improve the quality of your crop. g

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